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describes, whether it is a lion charging upon him with the speed of an express train, trees that strangled each other, or trees that dripped with honey when wounded. This observation was instinctive with Theodore Roosevelt because he was a born naturalist.

SHORTER NOTES

HELIANTHUS BESSEYI BATES. — *Helianthus besseyi* J. M. Bates was described in American Botanist, February, 1914, p. 17, from specimens collected at Red Cloud, Nebraska. Last spring Mr. Bates was kind enough to send me some of the tubers, which I planted in my garden at Boulder, May 5. The tubers are elongate-fusiform, and yellowish. Today (September 14) the plants are past flowering, though the closely related *H. alexandri*,* a few feet away, is in full bloom. The plants are about 5 feet high when well grown, and are strict, with comparatively few floriferous branches, entirely in the style of *alexandri*. The stems are reddish and scabrous, as in *alexandri*, but rougher. Leaves opposite, alternate above, as in *alexandri*. Leaves subovate, conspicuously broader than in *alexandri*, and somewhat paler, the bases broad-cuneate, the petioles fairly long and distinctly winged. As in *alexandri*, the upper surface is rough, the lower soft-hairy, with the hairs on the midrib appressed. The rays are orange, as in *alexandri*, but are much shorter, about 30 mm. (in *alexandri* 41 mm. long and 14.5 wide). The achenes are the same in both, but the disc-corollas of *besseyi* are shorter, with paler lobes. The involucre bracts are spreading, but short (about 9 mm. long, base of involucre to end of longest phyllary about 12 mm.), with blackish bases (entirely pale green in *alexandri*), and there is the appearance of an extra row. The leaves are entirely dull above. The plant is quite distinct from *H. nebrascensis* (Ckll.), which also occurs at Red Cloud, and although it is close to the Michigan *H. alexandri*, it must evidently be separated from it, having a number of salient characters. It adds one more to the assemblage of closely related species grouping around *H. tuberosus*.

* *Helianthus tuberosus alexandri* Ckll., Amer. Naturalist, LIII: 188; *H. alexandri* Ckll., Monthly Bull. Calif. State Comm. Horticulture, VIII: 249. (1919.)

A matter for investigation is the relationship between *H. besseyi* and *H. apricus* Lunell, Amer. Midl. Nat., 1910, 237. The latter species, found on the open prairie in North Dakota, differs from *besseyi* by the narrower leaves, and the involucre bracts in two rows. The description is not sufficiently detailed to permit adequate comparisons. In the herbarium of the New York Botanical Garden I have examined *H. apricus camporum* (Lunell), from the type lot. This variety has leaves shaped as in *besseyi*, but more remotely dentate, and (according to the description) scabrous beneath. *H. nitidus* Lunell, from the description, seems more like *H. nebrascensis*, but the rays are less than half as long.—T. D. A. COCKERELL

BOULDER, COLORADO

THE SUPPOSED SOUTHERN LIMIT OF THE EASTERN HEMLOCK.—The common hemlock of the eastern United States—or spruce pine as it is often called in the South—*Tsuga Canadensis*, has long been known to range farther south in Alabama than in any other state. Dr. Charles Mohr knew it in this state only from a few localities in Winston County, at altitudes exceeding 800 feet, where it was probably first made known by Judge T. M. Peters about fifty years ago.* In March, 1906, I found it near Spruce Pine, in Franklin County,† and in November, 1911, in the northeastern portion of Marion County and at the great natural bridge in the southwestern part of Winston County.‡

About twelve years ago a friend in Tuscaloosa wrote me that he had seen a hemlock tree floating in the Warrior River near that place at a time of high water, and wondered where it had come from. The nearest known stations for it at that time were in Winston County, about 60 miles from Tuscaloosa in a straight line and at least 100 by water, but the tributaries of the Warrior River there are so small and so rocky that it was hard to believe that a tree could have floated all the way and remained recognizable. The facts set forth below, however, explain how such a tree could have reached Tuscaloosa with a much shorter journey.

* See Mohr's Plant Life of Alabama (1901), pp. 34, 72, 159, 208, 324, 325.

† Bull. Torrey Club 33: 524-525. 1906.

‡ Geol. Surv. Ala., Monog. 8: 49, 136. 1913.

On September 2, 1919, with a party of visiting geologists, I had a boat ride on the reservoir from which water is pumped to most of the iron furnaces and rolling mills of the Tennessee Coal, Iron & Railroad Co. in the vicinity of Birmingham. It was constructed eight or nine years ago by building a dam about 90 feet high across Village Creek just above the mouth of Venison Creek, about three miles southwest of Adamsville, in Jefferson County, Alabama, in latitude $33^{\circ} 34'$, and about 500 feet above sea-level. This creek is a tributary of the Locust Fork of the Warrior River, and the dam is about twelve miles from the river by the course of the creek, which flows in a general northwesterly direction.

On the shady side of the reservoir, with a northeasterly exposure, and also in the gorge just below the dam, we noticed several specimens of the tree in question. I did not have time to go down the creek below the dam, but judging from the available topographic maps conditions should be favorable for the hemlock all the way down to the river. The whole country from there to Tuscaloosa is in the Warrior coal field, characterized by shaly sandstone of the upper Carboniferous. This creek, like several other tributaries of the Locust Fork, takes its rise in a limestone valley, but that may have little to do with the occurrence of the hemlock.

At one point a long-leaf pine, *Pinus palustris*, was noticed on the sunny side of the reservoir directly opposite some of the hemlock and scarcely a stone's throw away. That pine is common on many hills and mountains in Jefferson County, and extends inland to the northern part of Walker County,* but this is probably the first time that its range has been recorded as overlapping that of *Tsuga Canadensis*. Incidentally, there seems to be a wide gap between the known stations for the latter in Alabama and those in Georgia and Tennessee, a fact not easily explained at present.—ROLAND M. HARKER.

* See Geol. Surv. Ala., Monog. 8: 54, 140. 1913.